

## REMARKS

Applicants have carefully considered this Application in connection with the Examiner's Action, and respectfully request reconsideration of this Application in view of the above Amendment and the following remarks.

Applicants have amended Claims 1, 4, 12, 13, 33, and 37. Claims 1, 33, 37 and 41 have been amended to specify that the acidulant is AGIIS, HAMMIA, HAMO, a mixture of these, or an adduct of each of these. Support for these amendment are found in Claims 2, 34, 38, and 42, respectively, which have been cancelled. The claims have also been amended to specify that the treated nutriment is heated for an amount of time sufficient to inactivate the gram negative pathogens in the treated nutriment. Support for this amendment can be found at Page 43, lines 3 to 22, and Figures 4 and 5. In this example, the treated nutriments were heated to temperatures of 57°C and 63°C to completely inactivate the gram negative pathogens.

Pending in the application are Claims 1, 4 – 9, 12 – 13, 33, 36 – 37, and 39- 41.

### II. Rejections Under 35 U.S.C. §103(a)

#### A. Kemp or Iannotti in view of Canning

Claims 1 – 2, 4 – 9, 12 – 13, 33 – 34, and 36 stand rejected under 35 U.S.C. §103(a) as being unpatentable over International Patent Application Publication No. WO 00/48469 in the name of Kemp et al. ("Kemp") or U.S. Patent No. 6,326,042 in the name of Iannotti et al. ("Iannotti") in view of Complete course in Canning p. 238, 478, 479 ("Canning"). Applicants respectfully assert that these cited references do not teach or suggest all of the claim limitations.

Claims 1, 4, 12, 13, and 33 have been amended above to specify that the nutriment treated with the acidulant is heated for an amount of time sufficient to inactivate the gram negative pathogens in the treated nutriment.

The Examiner has indicated that “Canning discloses that it is known to heat-treat foods to inactivate pathogens and that the use of an acid decreases the heat treatment time.” See Office Action dated November 15, 2005, Page 2. Applicants do not dispute that the traditional method of acidulating foods is described in Canning. However, the claims do not pertain to traditional acidulation, which is commonly known to reduce the amount of heating time required to sterilize a food product. **All acidulants are not created equal.** Applicant’s claims pertain to the use of several unique acidulants which are the subject of numerous U.S. patents, including U.S. Patent No. 6,436,891 for “Adduct Having An Acidic Solution of Sparingly-Soluble Group IIA Complexes,” recently allowed U.S. Patent Application Serial No. 09/500,473 for “Acidic Solution of Sparingly-Soluble Group IIA Complexes, and U.S. Patent No. 6,881,424 for “Highly Acidic Metalated Organic Acid.” These acidulants, and especially AGIIS, have been shown to preserve or improve the organoleptic qualities of food products. See Specification, Page 10, lines 16 – 17. The acidulants, and especially AGIIS, can reduce the pH level of a food product to a very low, acidic level without being dangerous to users. See Specification, Page 13, lines 9 – 25. Finally, meat-based nutriment treated with the acidulants, and especially AGIIS, require significantly reduced heating times to reach a level of pathogen inactivation at which they are safe to eat. See Specification, Example 13. A reduction in the amount of heat processing (either at lower temperature or at reduced amount of heating time, or both) that a nutriment must undergo helps preserve the sensory properties and nutritional value of the nutriment, as well as promote cost savings by reducing the amount of heat or energy that must be expended to prepare the nutriment for human consumption. See Specification, Page 4, lines 22 – 26. **Although a general reduction in heating time may be seen with traditional acidulation, the use of the novel acidulants AGIIS, HAMMIA, and HAMO is particularly advantageous due to the extreme shift in D-value and the favorable properties that these acidulants possess.**

The Examining Attorney has also stated: “Nothing new is seen in picking out a particular amount of time to inactivate 90% of the gram negative pathogens because that is what cooking does. The length of time to heat the meat would have been expected to have been less since Canning discloses that the use of acids and heat together decrease the length of time that the food needs to be heated.” See Office Action dated November 15, 2004, page 3.

Applicants respectfully assert that the claims do not pertain to “picking out a particular amount of time to inactivate 90% of the gram negative pathogens.” Rather, the amended claims specify that the amount of heating time that is sufficient to inactivate the gram negative pathogens is greatly reduced when compared to a non-treated nutriment. That amount of time is a full 30% to 75% less to inactivate 90% of the pathogens. Neither Kemp, nor Iannotti, nor Canning, nor the combination of these references, teaches or suggests a method for increasing the rate of inactivation of gram negative pathogens, such as *E. coli* and *Salmonella*, by 30% to 75% in uncooked meat products. Even if these references generally suggest that a reduction in heating time may be achieved, **none of them teach or suggest such a drastic reduction in the amount of time required to inactivate the gram negative pathogens.**

The Examiner has dismissed the argument regarding the 30% to 75% reduction in heating time by indicating that “Nothing new is seen in this as it is known that heating of food kills pathogens, and that not fully cooking a food would not kill all the pathogens and that the use of an acid decreases the time required to kill pathogens (Canning).” See Office Action dated November 15, 2005, page 6. However, the Examiner has failed to address the degree of reduction in heating time and its vital importance to the food industry. **It is true that heating of food kills pathogens, but it is also true that heating of food for too long or too high a temperature results in charring, loss of taste, and loss of nutritional value.** As has been recently reported, charring of food generates carcinogens (i.e., cancer causing agents) in the food. Applicant’s claimed methods thus represent an important advancement in the meat processing industry by safely eliminating pathogens while preserving the quality and taste of the cooked foods.

The extreme reduction in necessary heating time to inactivate 90% of the pathogens as described in the claims is known in the industry as a shift in D-value. See Specification, Page 3, lines 3 – 8. The D-value shift is advantageous because it makes it possible for a consumer to accidentally “undercook” a meat-based nutriment by as much as 5 – 10°C without any adverse consequences. See Specification, Page 43, lines 10 – 22. It is also advantageous to the fast food industry, which is dependent on shorter cooking times but also must ensure that the food product is safe for consumption. Meat processors are more likely to have their products purchased by fast food

chains if they advertise this extreme D-value shift, rather than a general reduction in cooking times as accomplished by traditional acidulation. **Meat-based nutriments processed according to the current claims will be of higher quality through the retention of organoleptic characteristics and nutritional value, and will simultaneously require less energy and shorter, lower-temperature cooking times.** Thus, there will be less thermal degradation of the nutriment and a higher level of food safety. These characteristics set the claimed processes apart from those described in Kemp or Iannotti in view of Canning.

Furthermore, with regard to Claims 33, 34, and 36, Applicants respectfully assert that, while the addition of a traditional acidulant to chilled or frozen foods may be accepted, the addition of one of the novel acidulants AGIIS, HAMO, or HAMMIA is not obvious. These acidulants possess unique properties and are capable of significantly reducing the required heating time of a chilled or frozen nutriment. The extreme 30% to 75% shift in D-value which is demonstrated in chilled or frozen nutriments is highly advantageous to large meat processors and packers which ship large numbers of frozen meat products. The expected inactivation of pathogens due to the traditional processes of acidulating, chilling, or freezing is not nearly as effective nor as convenient as the use of the current claimed methods.

For these reasons, Applicants respectfully submit that Claims 1, 4 – 9, 12, 13, 33, and 36 are patentable over Kemp or Iannotti in view of Canning.

B. Kemp or Iannotti, in view of Canning, in further view of Guthery

Claims 37 – 43 stand rejected under 35 U.S.C. §103(a) as being unpatentable over Kemp or Iannotti, in view of Canning, and in further view of Guthery. Applicants respectfully assert that these cited references do not teach or suggest all of the claim limitations and that the cited references do not suggest a reasonable expectation of success.

The Examiner asserts that “it would have been obvious to treat a nutriment with an acidulant to increase the rate of thermal inactivation of a pathogen or to increase the shelf life of a nutriment.” See Office Action dated November 15, 2004, page 5. Applicants respectfully assert that it would not

have been obvious to treat a meat-based nutriment with one the unique acidulants AGIIS, HAMO, or HAMMIA to achieve a 30% to 75% reduction in the amount of heating time required to make the nutriment safe to eat. There is also no suggestion that these particular acidulants would produce a lingering effect that could sustain the shelf-life of a packaged, uncooked meat-based nutriment.

As described above, the acidulants AGIIS, HAMO, and HAMMIA are not typical acidulants. They possess unique and beneficial properties that strong acids do not. In particular, they preserve rather than destroy the organoleptic qualities and the nutritional value of the treated meat product. They are also safer to use than typical strong acids. These are significant advantages on their own, but the claimed methods also capitalize on these acidulants' abilities to reduce the required heating times for treated, uncooked meat products to a level that is not achievable with traditional acidulation techniques. Thus, the current claimed methods are superior to and clearly not obvious in view of current methods of acidulating meat products.

For these reasons, Applicants respectfully submit that Claims 37 and 39 – 41 are patentable over Kemp or Iannotti in view of Canning and in further view of Guthery.

#### **IV. Conclusion**

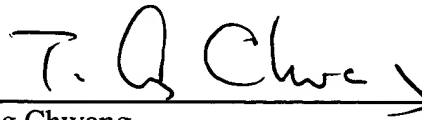
Applicants respectfully submit that, in light of the foregoing comments, Claims 1, 4 – 9, 12, 13, 33, 36 – 37, and 39 – 41 are in condition for allowance. A Notice of Allowance is therefore requested.

Attorney Docket No.:  
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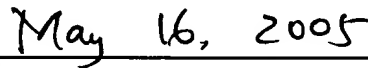
If the Examiner has any other matters which pertain to this Application, the Examiner is encouraged to contact the undersigned to resolve these matters by Examiner's Amendment where possible.

Respectfully submitted,



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T. Ling Chwang  
Registration No. 33,590  
JACKSON WALKER L.L.P.  
2435 North Central Expressway, #600  
Richardson, TX 75080  
Tel: (972) 744-2919  
Fax: (972) 744-2909



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Date